



MICHIGAN DEPARTMENT OF NATURAL RESOURCES
Wildlife Division Report No. 3495
November 2008

Printed by Authority of: P.A. 451 of 1994
Total Number of Copies Printed:25
Cost per Copy:\$1.96
Total Cost:\$49.00
Michigan Department of Natural Resources

2008 MICHIGAN SPRING TURKEY HUNTER SURVEY

Brian J. Frawley

ABSTRACT

A survey of turkey hunters was conducted following the 2008 spring hunting season to determine turkey harvest and hunter participation. In 2008, nearly 96,500 hunters harvested about 42,000 turkeys. Statewide, 43% of hunters harvested a turkey. The 2008 turkey harvest was 7% greater than the 2007 harvest and was the largest harvest in Michigan's history. Although harvest increased, the number of hunters and their hunting effort was nearly unchanged between 2007 and 2008. Nearly 68% of the hunters rated their hunting experience as excellent, very good, or good in 2008. About 89% of the hunters reported they experienced no or only minor interference from other hunters.

INTRODUCTION

Michigan's spring turkey (*Meleagris gallopavo*) hunting season was based originally on an area and quota system. This system was set up primarily to distribute hunters across geographic areas (management units) and time (hunt periods). As the turkey population has expanded statewide, license types were created that allowed hunters to hunt in multiple management units. The goal of the current system has been to provide hunting opportunities while maintaining acceptable levels of hunter satisfaction (Luukkonen 1998).

In 2008, 80% of the state (48,147 square miles) was open for wild turkey hunting from April 23 through May 31 (Figure 1). The area open for turkey hunting was the same as in 2007. The hunting area was divided into 12 management units (Figure 1). Hunting licenses were available on these management units for three types of hunts: (1) quota [limited licenses available] hunts on both public and private lands in a specific management unit, (2) quota hunt on private lands in southern Michigan [Hunt 301 in Unit ZZ], and (3) a guaranteed hunt (no quota) that included all units [Hunt 234].



A contribution of Federal Aid in Wildlife Restoration, Michigan Project W-147-R

Equal Rights for Natural Resource Users

The Michigan Department of Natural Resources provides equal opportunities for employment and access to Michigan's natural resources. Both State and Federal laws prohibit discrimination on the basis of race, color, national origin, religion, disability, age, sex, height, weight or marital status under the U.S. Civil Rights Acts of 1964 as amended, 1976 MI PA 453, 1976 MI PA 220, Title V of the Rehabilitation Act of 1973 as amended, and the 1990 Americans with Disabilities Act, as amended.

If you believe that you have been discriminated against in any program, activity, or facility, or if you desire additional information, please write:
Human Resources, Michigan Department of Natural Resources, PO Box 30028, Lansing MI 48909-7528, or
Michigan Department of Civil Rights, Cadillac Place, 3054 West Grand Blvd, Suite 3-600, Detroit, MI 48202, or
Division of Federal Assistance, U.S. Fish & Wildlife Service, 4401 North Fairfax Drive, Mail Stop MBSP-4020, Arlington, VA 22203.

For information or assistance on this publication, contact Michigan Department of Natural Resources, Wildlife Division, P.O. Box 30444, MI 48909.
This publication is available in alternative formats upon request.

IC2042-500 (11/05/2008)

People interested in obtaining a turkey hunting license could enter into a random drawing (lottery) conducted by the Department of Natural Resources or purchase a license for Hunt 234 between January 1 and February 1 without going through the lottery. Each applicant in the lottery could select up to two hunt choices (any combination of quota and unlimited quota hunts). The lottery consisted of two drawings. The first drawing was used to select applicants based on their preferred hunt choice. The second drawing was among applicants who were not successful in the first drawing, and was based on the hunter's second choice for a hunt. Any licenses available after the drawing was completed were made available on a first-come, first-served basis to applicants that were unsuccessful in the drawing. Unsuccessful applicants could purchase one leftover license or a license for Hunt 234. Beginning one week after licenses were available to unsuccessful applicants, all remaining licenses except licenses for Hunt 234 were made available to nonapplicants. Hunters were allowed to purchase one license and take one bearded turkey with the harvest tag issued with their license.

A limited number of licenses were available for quota hunts, and they were valid only in a certain management unit and only during a limited time period (7-27 days). Most quota hunts began before May 5 and lasted for seven days. A private land management unit (Unit ZZ) was created in 2002 that included all private lands in southern Michigan (Figure 1). Hunters who selected Hunt 301 could hunt the first two weeks of the season (April 21-May 4) anywhere on private lands in Unit ZZ. This unit and hunt period was created to provide additional hunting opportunity and increased flexibility for hunters who had difficulty finding time to hunt during shorter quota hunts.

Licenses for Hunt 234 could be used in any management unit. They were valid on public and private lands, except in Unit ZZ where they were only valid on private lands or on Fort Custer military lands. Hunt 234 started later than most quota hunts but lasted for 27 days (May 5-31). An unlimited number of licenses were available for Hunt 234.

The Wildlife Division and the Natural Resources Commission have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Harvest surveys are a management tool used by the Wildlife Division to accomplish its statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are the primary objectives of this survey.

METHODS

The Wildlife Division provided all hunters the option to report voluntarily information about their turkey hunting activity via the Internet. This option was advertised in the hunting regulation booklet and through a statewide news release. Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, the days spent afield, whether they harvested a turkey, and whether other hunters caused interference during their hunt (none, minor, some irritation, or major problem). Successful hunters were also asked to report where their turkeys were taken (public or private land), date of harvest, and beard length of the harvested bird. Birds with a beard less than six inches were classified as juveniles (one year old), while birds with longer

beards were adults (two years old or greater; Kelly, 1975). Finally, hunters rated their overall hunting experience (excellent, very good, good, fair, or poor).

Following the 2008 spring turkey hunting season, a questionnaire was sent to 11,095 randomly selected people that had purchased a turkey hunting license (resident turkey, senior resident turkey, and nonresident turkey licenses) and had not already voluntarily reported harvest information via the Internet. Hunters receiving the questionnaire were asked to report the same information that was collected from hunters that reported voluntarily on the Internet.

Estimates were calculated using a stratified random sampling design that included 15 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (12 management units). Hunters who purchased a license that could be used in multiple management units (hunts 234 and 301) were treated as separate strata (strata 13 and 14). Moreover, people that had voluntarily reported information about their hunting activity via the Internet were treated as a separate stratum (fifteenth stratum).

A 95% confidence limit (CL) was calculated for each estimate. This CL could be added to and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval was a measure of the precision associated with the estimate and implies the true value would be within this interval 95 times out of 100. Estimates were based on information collected from random samples of hunting license buyers. Thus, these estimates were subject to sampling errors (Cochran 1977). Estimates were not adjusted for possible response or nonresponse biases.

Statistical tests are used routinely to determine the likelihood that differences among estimates are larger than expected by chance alone. The overlap of 95% confidence intervals was used to determine whether estimates differed. Non-overlapping 95% confidence intervals was equivalent to stating the difference between the means was larger than would be expected 995 out of 1,000 times ($P < 0.005$), if the study had been repeated (Payton et al. 2003).

Questionnaires were mailed initially during late June 2008, and nonrespondents were mailed up to two follow-up questionnaires. Although 11,095 people were sent the questionnaire, 130 surveys were undeliverable resulting in an adjusted sample size of 10,965. Questionnaires were returned by 7,494 people, yielding a 68% adjusted response rate. In addition, 5,379 people voluntarily reported information about their hunting activity via the Internet before the random sample was selected.

RESULTS AND DISCUSSION

In 2008, licenses were purchased by 118,015 people, a decrease of 3% from 2007 (Table 1). Most of the people buying a license were men (93%), and the average age of the license buyers was 44 years (Figure 2). Nearly 9% (11,000) of the license buyers were younger than 17 years old.

About 81% ($\pm 1\%$) of license buyers hunted turkeys (96,557 hunters). Most of these hunters were men ($90,033 \pm 1,100$), although nearly 7% ($\pm 1\%$) of the hunters were women ($6,524 \pm 588$). Hunter numbers (Table 2) were nearly unchanged from 2007. Counties listed in descending order with more than 2,000 hunters afield included Kent, Allegan, Newaygo, Jackson, Lapeer, Saginaw, Montcalm, Tuscola, Barry, Sanilac, and St. Clair (Table 3).

Hunters spent an estimated 409,857 days afield pursuing turkeys (4.2 ± 0.1 days/hunter), and harvested approximately 42,002 birds (Figure 3). Counties listed in descending order with hunters taking more than 1,000 turkeys included Allegan, Kent, Lapeer, Montcalm, Newaygo, Barry, Jackson, Calhoun, Tuscola, and Sanilac (Table 3). Hunter effort was nearly unchanged from 2007, but statewide harvest increased significantly by 7%. The number of turkeys harvested in 2008 was the largest harvest in Michigan's history. Hunter success was 43% in 2008, compared to 40% hunter success in 2007.

About 28% ($\pm 2\%$) of the harvested birds were juvenile males ($11,596 \pm 761$); 71% ($\pm 2\%$) were adult males ($29,830 \pm 1,097$), and about 1% were bearded females (432 ± 151). Additionally, the age of a small number of harvested birds ($<1\%$) was unknown (144 ± 91) because hunters failed to report a beard length.

Hunting effort and the number of turkeys harvested were generally highest during the earliest hunting periods (Figures 4-7). For turkeys that the harvest date was known, 44% of these birds were taken during the first seven days (April 21-27). Daily hunter success generally was more than 8% during April 21 through May 5. Daily hunter success was generally below 8% during May 6-23, but generally increased to over 8% during May 24-31. Hunting effort and harvest generally was greater on the weekends than weekdays, especially on Saturdays.

About 81% of turkey hunters hunted solely on private land; 13% hunted on public land only; and 6% hunted on both private and public lands (Table 4). Of the 42,002 turkeys harvested in 2008, $88 \pm 1\%$ were taken on private land ($36,883 \pm 1,163$ birds). About $12 \pm 1\%$ of the harvest ($5,079 \pm 517$ birds) was taken on public land.

Hunter satisfaction is one measure used to assess the turkey management program in Michigan. Of the estimated 96,557 people hunting turkeys in 2008, $68 \pm 1\%$ of the hunters rated their hunting experience as either excellent ($20,243 \pm 940$ hunters), very good ($20,834 \pm 973$), or good ($24,785 \pm 1,048$) (Table 5). Nearly $18 \pm 1\%$ of the hunters rated their experience as fair ($17,700 \pm 923$ hunters). Only $11 \pm 1\%$ of the hunters rated their experience as poor ($10,768 \pm 745$ hunters). About 2% of the hunters ($2,227 \pm 350$ hunters) failed to rate their hunting experience.

Hunter satisfaction is affected by many factors such as hunting success and whether hunting activities were completed without interference (Luukkonen 1998). In 2008, $69 \pm 1\%$ of the hunters reported no hunter interference; $20 \pm 1\%$ reported minor interference; $8 \pm 1\%$ reported some irritation caused by hunter interference; and $2 \pm 1\%$ reported hunter interference was a major problem (Table 6).

Although interference can affect hunter satisfaction, hunter satisfaction was more closely associated with hunter success (Figures 8 and 9). Hunter success was greater than 35% in all hunt periods, and hunter success and satisfaction varied little among the hunt periods (Table 7).

Compared to 2007, hunter numbers and hunter effort did not change significantly statewide in 2008. However, harvest, hunter success, and hunter satisfaction increased significantly in the southern Lower Peninsula between 2007 and 2008 (Tables 8-9).

ACKNOWLEDGEMENTS

I thank all the turkey hunters that provided information. Autumn Feldpausch, Theresa Riebow, and Becky Walker completed data entry. Kraig Korroch and Chris Larson developed the Internet harvest reporting application. Marshall Strong prepared the figure of the turkey management units (Figure 1). Mike Bailey, Russ Mason, Cheryl Nelson, Doug Reeves, and Al Stewart reviewed a draft version of this report.

LITERATURE CITED

- Cochran, W. G. 1977. Sampling techniques. John Wiley & Sons, New York. USA.
- Kelly, G. 1975. Indexes for aging eastern wild turkeys. Proceedings of the National Wild Turkey Symposium. 3:205-209.
- Luukkonen, D. R. 1998. Spring wild turkey hunting regulation issues in Michigan. Wildlife Division Issue Review Paper 4. Michigan Department of Natural Resources, Lansing, USA.
- Payton, M. E., M. H. Greenstone, and N. Schenker. 2003. Overlapping confidence intervals or standard error intervals: what do they mean in terms of statistical significance? Journal of Insect Science 3:34.

Table 1. Number of hunting licenses available and people applying for licenses during the 2008 Michigan spring turkey hunting season.

Management unit or hunt period	Licenses available (quota)	Number of eligible applicants ^a	Number of applicants successful in drawing ^b	Number of licenses remaining after drawing	Number of licenses purchased by successful applicants ^c	Number of leftover licenses purchased by unsuccessful applicants ^c	Number of licenses purchased by people not in the drawing ^c	Number of licensees ^c
A	5,500	4,646	4,733	767	3,490	58	681	4,229
E	1,700	2,716	1,700	0	1,293	0	0	1,293
F	5,000	6,154	5,004	0	3,652	0	0	3,652
J	4,000	2,970	2,906	1,094	2,127	60	891	3,078
K	8,500	13,991	8,508	0	6,693	0	0	6,693
M	8,000	3,221	3,245	4,755	2,559	6	2,742	5,307
ZA	4,800	4,169	3,429	1,371	2,417	142	1,166	3,725
ZB	1,750	1,948	1,325	425	951	105	282	1,338
ZC	2,000	2,570	1,561	439	1,067	173	240	1,480
ZD	40	113	40	0	21	0	0	21
ZE	2,000	3,049	1,763	237	1,277	151	90	1,518
ZF	5,600	3,911	3,708	1,892	2,805	59	1,735	4,599
Hunt 301	65,000	22,359	23,059	41,941	18,956	978	18,102	38,036
Hunt 234	NA	1,140	2,283	NA	1,785	2,888	38,373	43,046
Statewide	113,890	72,957	63,264	52,921	49,093	4,620	64,302	118,015

^aNumber of eligible applicants selecting the management unit as their first choice to hunt.

^bNumber of successful applicants was sometimes larger than quota because of system processing errors.

^cIf a licensee purchased more than one license, only the latest purchase is included in the summary of licenses purchased.

^dLicenses sold between January 1 and February 1.

Table 2. Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2008 Michigan turkey hunting season.

Management unit	Hunters ^a		Hunting efforts (days) ^a		Harvest ^a		Hunter success		Hunter satisfaction ^b		Noninterfered hunters ^c	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Hunt periods with quotas (General limited quota hunt periods)												
A	3,727	160	14,272	1,291	1,555	234	42	6	53	6	87	4
E	1,147	47	3,576	279	501	71	44	6	65	6	92	3
F	3,242	132	11,964	1,048	971	180	30	5	53	6	84	4
J	3,491	199	12,283	1,189	1,342	248	38	7	61	7	90	4
K	6,120	221	20,627	1,625	2,547	371	42	6	64	6	87	4
M	4,216	269	21,225	3,005	1,617	301	38	7	66	7	95	3
ZA	3,115	177	11,131	1,217	1,236	220	40	7	64	7	84	5
ZB	1,076	65	3,834	474	367	70	34	6	68	6	89	4
ZC	1,253	67	4,689	566	456	84	36	6	64	6	86	5
ZD	14	3	69	22	0	0	0	0	56	19	78	16
ZE	1,345	63	5,049	536	460	87	34	6	73	6	86	5
ZF	3,845	220	15,765	1,986	1,891	288	49	7	69	6	85	5
Subtotal	32,591	546	124,481	4,710	12,942	730	40	2	63	2	88	1
Hunt period 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2008)												
ZA	9,028	591	35,449	3,296	4,581	449	51	4	76	3	89	2
ZB	3,410	397	12,098	1,788	1,626	280	48	6	75	5	86	4
ZC	4,414	443	15,314	1,936	2,213	321	50	5	72	5	87	4
ZD	203	101	591	332	66	56	33	23	92	13	85	18
ZE	8,717	583	33,027	2,922	4,268	433	49	4	75	3	88	2
ZF	7,340	548	27,212	2,790	3,690	407	50	4	77	4	89	3
Unknown	280	119	1,070	621	35	40	12	13	67	20	68	20
Subtotal	32,614	493	124,761	4,379	16,479	687	51	2	75	2	88	1

^aNumber of hunters does not add up to statewide total because hunters can hunt in more than one unit for hunts 234 and 301. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

^bProportion of hunters that rated their hunting experience as excellent, very good, or good.

^cProportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 2 (continued). Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2008 Michigan turkey hunting season.

Management unit	Hunters ^a		Hunting efforts (days) ^a		Harvest ^a		Hunter success		Hunter satisfaction ^b		Noninterfered hunters ^c	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2008)												
A	817	205	3,488	1,089	171	93	21	10	49	13	96	5
E	1,468	276	7,338	1,910	539	169	37	9	77	8	92	5
F	2,334	343	10,668	2,093	516	164	22	6	52	8	90	5
J	1,420	268	7,004	1,841	474	156	33	9	66	9	90	6
K	7,835	586	38,268	4,234	2,975	382	38	4	60	4	88	3
M	361	135	1,330	583	129	78	36	18	69	18	95	8
ZA	5,638	512	26,852	3,452	2,358	342	42	5	71	4	90	3
ZB	1,822	308	8,883	1,917	693	192	38	8	68	8	92	5
ZC	2,901	380	15,703	2,939	1,108	239	38	7	68	6	89	4
ZD	144	89	543	434	33	42	23	26	68	29	89	19
ZE	3,982	438	18,859	2,955	1,742	294	44	6	76	5	91	3
ZF	4,268	453	21,093	3,127	1,824	302	43	6	74	5	91	3
Unknown	223	106	585	323	19	30	8	13	32	22	93	13
Subtotal	31,353	683	160,614	7,003	12,581	687	40	2	67	2	90	1
Statewide	96,557	1,004	409,857	9,508	42,002	1,215	43	1	68	1	89	1

^aNumber of hunters does not add up to statewide total because hunters can hunt in more than one unit for hunts 234 and 301. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

^bProportion of hunters that rated their hunting experience as excellent, very good, or good.

^cProportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3. Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2008 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters ^a		Hunting efforts (days) ^a		Harvest ^a		Hunter success		Hunter satisfaction ^b		Noninterfered hunters ^c	
	95%		95%		95%		95%		95%		95%	
	Total	CL	Total	CL	Total	CL	%	CL	%	CL	%	CL
Alcona	1,706	280	7,174	1,591	477	152	28	8	49	9	95	4
Alger	290	149	1,351	839	78	76	27	23	52	26	100	0
Allegan	3,021	398	12,221	2,110	1,325	269	44	7	73	6	86	5
Alpena	1,280	240	4,758	1,180	568	168	44	10	62	10	85	7
Antrim	1,404	270	4,996	1,164	396	152	28	9	64	10	89	7
Arenac	559	146	2,337	888	200	86	36	13	67	11	92	8
Baraga	23	44	69	132	0	0	0	0	0	0	100	0
Barry	2,346	356	9,213	1,834	1,131	253	48	8	74	7	88	5
Bay	469	157	1,730	680	149	87	32	15	58	17	92	9
Benzie	481	183	1,269	549	87	85	18	16	58	19	94	10
Berrien	924	227	4,177	1,331	338	137	37	12	65	12	90	7
Branch	1,193	247	5,185	1,455	596	174	50	10	82	8	91	6
Calhoun	1,944	310	7,244	1,448	1,068	231	55	8	78	7	91	5
Cass	1,451	285	6,314	1,927	646	193	45	10	76	9	85	7
Charlevoix	1,046	240	3,485	1,101	551	180	53	12	72	11	93	6
Cheboygan	731	204	3,067	1,178	181	104	25	13	52	15	87	10
Chippewa ^d	0	0	0	0	0	0	0	0	0	0	0	0
Clare	1,111	194	3,726	951	440	123	40	9	73	8	93	5
Clinton	1,858	308	7,938	1,697	873	211	47	8	77	7	86	6
Crawford	773	184	3,526	1,124	147	80	19	9	54	12	79	10
Delta	1,494	298	7,219	2,473	566	203	38	11	68	11	95	5

^aNumber of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

^bProportion of hunters that rated their hunting experience as excellent, very good, or good.

^cProportion of hunters that indicated they experienced no or only minor interference from other hunters.

^dNot open for turkey hunting.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2008 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters ^a		Hunting efforts (days) ^a		Harvest ^a		Hunter success		Hunter satisfaction ^b		Noninterfered hunters ^c	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Dickinson	860	243	3,396	1,147	376	168	44	15	65	15	100	0
Eaton	1,708	291	7,613	1,809	701	183	41	8	76	7	94	4
Emmet	908	225	3,030	857	358	147	39	13	57	13	85	9
Genesee	1,825	296	7,591	1,771	805	196	44	8	71	7	85	6
Gladwin	982	185	4,736	1,468	389	114	40	9	76	8	92	5
Gogebic	1	0	1	0	0	0	0	0	100	0	100	0
Gd. Traverse	798	229	3,022	1,129	261	134	33	14	61	14	87	10
Gratiot	1,596	286	6,163	1,503	637	180	40	9	72	8	88	6
Hillsdale	1,648	281	5,831	1,350	809	199	49	9	79	7	91	5
Houghton	0	0	0	0	0	0	0	0	0	0	0	0
Huron	1,573	257	6,707	1,402	652	174	41	8	72	7	89	5
Ingham	1,610	278	6,644	1,644	720	182	45	9	77	7	85	6
Ionia	1,733	298	7,268	1,808	808	204	47	9	77	7	84	7
Iosco	999	210	3,408	889	304	118	30	10	50	11	90	7
Iron	466	184	2,309	1,215	165	111	35	20	66	20	86	14
Isabella	1,642	290	5,761	1,369	816	204	50	9	75	8	93	5
Jackson	2,792	356	9,755	1,674	1,119	229	40	6	73	6	90	4
Kalamazoo	1,769	312	6,854	1,658	796	206	45	9	73	8	89	6
Kalkaska	1,069	268	4,522	1,524	382	160	36	12	61	13	90	7
Kent	3,085	393	11,472	1,936	1,276	253	41	6	75	6	89	4
Keweenaw ^d	0	0	0	0	0	0	0	0	0	0	0	0

^aNumber of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

^bProportion of hunters that rated their hunting experience as excellent, very good, or good.

^cProportion of hunters that indicated they experienced no or only minor interference from other hunters.

^dNot open for turkey hunting.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2008 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters ^a		Hunting efforts (days) ^a		Harvest ^a		Hunter success		Hunter satisfaction ^b		Noninterfered hunters ^c	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Lake	1,311	286	5,389	1,595	449	175	34	11	63	10	95	4
Lapeer	2,783	356	11,460	1,949	1,188	232	43	6	66	6	90	4
Leelanau	477	181	2,014	906	88	66	18	13	57	19	87	12
Lenawee	923	209	3,360	926	311	120	34	11	81	9	87	8
Livingston	1,717	275	6,470	1,320	696	178	41	8	69	8	89	5
Luce ^d	0	0	0	0	0	0	0	0	0	0	0	0
Mackinac	21	37	61	112	0	0	0	0	5	9	100	0
Macomb	522	158	1,867	757	250	112	48	15	72	14	97	5
Manistee	993	253	4,031	1,395	292	141	29	12	75	11	88	8
Marquette	433	178	1,902	896	122	98	28	19	71	19	100	0
Mason	857	234	2,978	1,069	380	162	44	14	59	14	88	9
Mecosta	1,399	296	5,062	1,353	788	225	56	11	77	9	94	6
Menominee	1,074	262	4,634	1,488	367	155	34	12	60	13	95	6
Midland	1,474	277	4,637	1,053	701	192	48	10	72	9	90	6
Missaukee	715	215	2,976	1,089	289	135	40	15	41	15	88	11
Monroe	312	125	1,051	517	85	64	27	18	79	17	84	15
Montcalm	2,551	358	10,231	1,942	1,151	242	45	7	74	6	88	5
Montmorency	1,316	239	4,798	1,021	353	134	27	9	45	10	89	6
Muskegon	1,588	292	5,504	1,392	742	202	47	9	73	8	88	6
Newaygo	3,005	427	11,463	2,089	1,150	273	38	7	62	7	86	5
Oakland	1,344	232	5,610	1,561	611	161	45	9	74	8	85	6

^aNumber of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

^bProportion of hunters that rated their hunting experience as excellent, very good, or good.

^cProportion of hunters that indicated they experienced no or only minor interference from other hunters.

^dNot open for turkey hunting.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2008 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters ^a		Hunting efforts (days) ^a		Harvest ^a		Hunter success		Hunter satisfaction ^b		Noninterfered hunters ^c	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Oceana	1,154	272	5,675	1,851	446	172	39	12	63	12	69	11
Ogemaw	1,041	217	3,744	982	341	128	33	10	64	10	87	7
Ontonagon	1	0	1	0	0	0	0	0	100	0	100	0
Osceola	1,293	286	4,825	1,389	486	175	38	11	56	11	85	8
Oscoda	1,130	226	4,093	1,055	262	112	23	9	53	10	93	5
Otsego	921	225	4,108	1,298	309	137	34	12	59	13	96	5
Ottawa	1,895	320	6,771	1,403	981	232	52	9	76	7	88	6
Presque Isle	935	209	4,000	1,158	443	151	47	12	56	12	86	9
Roscommon	1,009	208	3,831	929	254	106	25	9	48	11	79	9
Saginaw	2,612	365	10,302	1,813	966	222	37	7	65	7	90	4
St. Clair	2,171	319	8,953	1,795	923	211	43	7	70	7	85	5
St. Joseph	1,206	256	5,282	1,394	499	163	41	11	75	9	91	6
Sanilac	2,303	328	8,467	1,636	1,011	221	44	7	74	6	87	5
Schoolcraft	204	126	1,122	874	72	76	35	30	66	30	100	0
Shiawassee	1,524	279	5,955	1,522	696	187	46	9	73	8	84	7
Tuscola	2,502	328	9,468	1,620	1,015	212	41	7	71	6	88	4
Van Buren	1,801	313	6,925	1,620	883	217	49	9	81	7	93	5
Washtenaw	1,091	212	4,183	1,034	441	136	40	10	75	9	82	8
Wayne	45	49	134	180	15	28	33	50	98	2	100	0
Wexford	1,313	298	5,156	1,395	421	174	32	11	68	11	86	9
Unknown	2,127	345	8,284	1,796	332	137	16	6	49	8	78	7

^aNumber of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

^bProportion of hunters that rated their hunting experience as excellent, very good, or good.

^cProportion of hunters that indicated they experienced no or only minor interference from other hunters.

^dNot open for turkey hunting.

Table 4. Estimated number and proportion of hunters hunting on private and public lands during the spring 2008 Michigan turkey hunting season.^a

Management unit	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
Hunt periods with quotas (General limited quota hunt periods)																
A	2,858	228	77	5	635	171	17	5	202	105	5	3	33	44	1	1
E	830	70	72	5	224	54	20	5	92	38	8	3	0	0	0	0
F	1,215	193	37	6	1,513	201	47	6	459	138	14	4	55	52	2	2
J	1,939	266	56	7	971	223	28	6	541	181	16	5	39	53	1	2
K	3,708	382	61	6	1,498	315	24	5	888	264	15	4	26	49	0	1
M	2,745	330	65	7	929	251	22	6	474	188	11	4	69	76	2	2
ZA	1,757	235	56	7	982	205	32	6	359	140	12	4	17	33	1	1
ZB	468	76	43	7	511	77	48	7	97	42	9	4	0	0	0	0
ZC	638	90	51	7	559	88	45	7	55	34	4	3	0	0	0	0
ZD	11	3	78	16	3	2	22	16	0	0	0	0	0	0	0	0
ZE	571	94	42	7	649	95	48	7	124	53	9	4	0	0	0	0
ZF	2,302	294	60	7	1,245	258	32	6	299	142	8	4	0	0	0	0
Subtotal	19,042	764	58	2	9,718	645	30	2	3,592	463	11	1	239	129	1	0
Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2008)																
ZA	9,028	591	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZB	3,410	397	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZC	4,414	443	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZD	203	101	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE	8,717	583	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZF	7,340	548	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	280	119	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	32,614	493	100	0	0	0	0	0	0	0	0	0	0	0	0	0

^aRow totals may not equal 100% because of rounding errors.

Table 4 (continued). Estimated number and proportion of hunters hunting on private and public lands during the spring 2008 Michigan turkey hunting season.^a

Management unit	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	95% %	95% CL	Total	95% CL	95% %	95% CL	Total	95% CL	95% %	95% CL	Total	95% CL	95% %	95% CL
Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2008)																
A	583	174	71	11	181	98	22	11	23	30	3	4	31	42	4	5
E	1,187	249	81	7	124	78	8	5	157	93	11	6	0	0	0	0
F	941	221	40	7	1,114	241	48	8	279	122	12	5	0	0	0	0
J	946	221	67	9	307	125	22	8	167	93	12	6	0	0	0	0
K	5,332	500	68	4	1,682	293	21	3	821	209	10	3	0	0	0	0
M	193	98	53	19	69	59	19	15	99	72	27	17	0	0	0	0
ZA ^b	5,638	512	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZB ^b	1,822	308	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZC ^b	2,901	380	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZD ^b	144	89	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE ^b	3,982	438	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZF ^b	4,268	453	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	150	89	68	22	40	42	18	17	32	42	14	17	0	0	0	0
Subtotal	26,379	744	84	2	2,878	377	9	1	2,064	324	7	1	31	42	0	0
Statewide ^c	78,036	1,174	81	1	12,596	747	13	1	5,656	565	6	1	270	136	0	0

^aRow totals may not equal 100% because of rounding errors.

^bLicenses for the unlimited quota hunt were valid only on private lands in Management Unit ZZ in southern Michigan (Figure 1).

^cNumber of hunters does not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunts.

Table 5. How hunters rated their hunting experience during the spring 2008 Michigan turkey hunting season.

Management unit	Satisfaction level (% of hunters) ^a					
	Excellent	Very good	Good	Fair	Poor	No answer
Hunt periods with quotas (General limited quota hunt periods)						
A	18	17	18	24	18	4
E	21	17	27	19	13	2
F	10	16	27	24	20	3
J	16	17	28	20	16	2
K	19	22	23	22	12	3
M	14	20	33	19	16	0
ZA	19	25	20	19	13	4
ZB	19	21	28	19	10	3
ZC	20	17	27	22	7	6
ZD	11	22	22	11	33	0
ZE	22	27	24	17	9	1
ZF	23	21	25	19	11	1
Mean	18	20	25	21	14	2
Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2008)						
ZA	27	25	24	14	7	3
ZB	24	23	28	15	7	3
ZC	29	23	20	20	7	1
ZD	16	31	44	8	0	0
ZE	27	23	26	16	6	2
ZF	27	23	26	16	5	2
Unknown	7	23	37	11	17	5
Mean	27	24	25	16	6	2

^aRow totals may not equal 100% because of rounding errors.

Table 5 (continued). How hunters rated their hunting experience during the spring 2008 Michigan turkey hunting season.

Management unit	Satisfaction level (% of hunters) ^a					No answer
	Excellent	Very good	Good	Fair	Poor	
Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2008)						
A	17	16	16	32	19	0
E	14	21	42	8	12	3
F	10	13	29	27	20	1
J	13	18	34	15	18	1
K	16	19	25	21	16	2
M	15	16	38	9	17	4
ZA	20	22	29	16	11	2
ZB	18	22	29	21	9	2
ZC	17	23	28	15	17	1
ZD	12	11	44	22	0	11
ZE	22	27	27	15	7	2
ZF	24	27	23	16	7	3
Unknown	2	14	15	32	36	0
Mean	18	21	27	18	13	2
Statewide ^b	21	22	26	18	11	2

^aRow totals may not equal 100% because of rounding errors.

^bStatewide mean satisfaction levels (all hunts and periods).

Table 6. Estimated amount of hunter interference experienced by turkey hunters during the spring 2008 Michigan turkey hunting season.

Management unit	Interference level (% of hunters) ^a				
	None	Minor	Some irritation	Major problem	No answer
Hunt periods with quotas (General limited quota hunt periods)					
A	68	18	7	2	5
E	77	14	6	0	2
F	57	27	10	4	2
J	71	19	6	2	2
K	66	22	8	3	1
M	78	17	4	0	1
ZA	64	21	9	3	3
ZB	67	22	8	1	2
ZC	66	20	7	2	6
ZD	33	44	22	0	0
ZE	59	27	10	2	2
ZF	62	23	9	4	2
Mean	67	21	8	2	2
Hunt 301 with quota (Private lands in Management Unit ZZ; April 21-May 4, 2008)					
ZA	69	20	8	2	2
ZB	69	17	10	1	3
ZC	67	20	10	2	1
ZD	69	16	15	0	0
ZE	67	22	9	1	1
ZF	69	20	8	2	1
Unknown	51	16	27	0	5
Mean	68	20	9	1	2

^aRow totals may not equal 100% because of rounding errors.

Table 6 (continued). Estimated amount of hunter interference experienced by turkey hunters during the spring 2008 Michigan turkey hunting season.

Management unit	Interference level (% of hunters) ^a				
	None	Minor	Some irritation	Major problem	No answer
Unlimited quota hunt period (Guaranteed Hunt 234; May 5-31, 2008)					
A	84	12	4	0	0
E	82	10	5	1	1
F	71	19	9	1	0
J	69	21	6	2	2
K	68	20	9	2	1
M	82	13	5	0	0
ZA	70	20	6	1	2
ZB	75	18	6	1	1
ZC	75	14	9	2	1
ZD	78	11	0	0	11
ZE	70	21	7	1	2
ZF	70	21	7	0	2
Unknown	85	8	7	0	0
Mean	72	18	7	1	1
Statewide ^b	69	20	8	2	2

^aRow totals may not equal 100% because of rounding errors.

^bStatewide mean interference levels (all hunts and periods).

Table 7. Estimated number of hunting efforts, hunters, hunting success, noninterfered hunters, and hunter rating of the 2008 spring turkey hunting season, by hunt periods.

Spring turkey hunting season, by hunt period										
Variable	Hunt periods beginning								All periods ^a	
	April 21		April 28		May 5		May 12			
	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL
Hunting efforts (days)	182,163	5,346	47,526	3,807	166,689	7,077	13,479	2,181	409,857	9,508
Number of hunters	48,010	757	12,365	634	33,215	731	2,968	318	96,557	1,004
Successful hunters (n)	22,058	850	5,422	543	13,358	713	1,164	243	42,002	1,215
Successful hunters (%)	46	2	44	4	40	2	39	7	43	1
Noninterfered hunters (n) ^b	42,104	851	11,092	624	29,793	767	2,582	310	85,570	1,159
Noninterfered hunters (%) ^b	88	1	90	2	90	1	87	5	89	1
Favorable rating (n) ^c	33,219	880	8,638	622	22,108	792	1,897	286	65,862	1,272
Favorable rating (%) ^c	69	2	70	3	67	2	64	7	68	1

^aRow totals may not equal totals for all periods because of rounding errors.

^bProportion of hunters that indicated they experienced no or only minor interference from other hunters.

^cHunters rating their hunting experience as excellent, very good, or good.

Table 8. Comparison of the estimated number of hunters, hunting effort, and harvest between 2007 and 2008 Michigan spring turkey hunting seasons, summarized by regions.

Region ^a	Hunters (No.) ^b					Hunting efforts (days)					Harvest (No.)				
	2007		2008		Change (%)	2007		2008		Change (%)	2007		2008		Change (%)
	Total	95% CL	Total	95% CL		Total	95% CL	Total	95% CL		Total	95% CL	Total	95% CL	
UP	4,953	336	4,506	310	-9	24,128	3,066	22,064	3,062	-9	2,009	347	1,747	311	-13
NLP	31,192	591	30,680	814	-2	126,018	3,969	127,200	5,892	1	10,857	566	11,492	714	6
SLP	59,607	694	60,374	966	1	256,274	5,349	252,308	7,765	-2	25,915	665	28,431	977	10*
Unknown	2,637	305	2,127	345		11,218	2,001	8,284	1,796		387	105	332	137	
Total	97,074	778	96,557	1,004	-1	417,639	6,971	409,857	9,508	-2	39,168	921	42,002	1,215	7*

^aRegions included the Upper Peninsula (UP), the northern Lower Peninsula north of Management Unit ZZ (NLP), and Management Unit ZZ in the southern Lower Peninsula (SLP).

^bNumber of hunters did not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunt.

*P<0.005.

Table 9. Comparison of estimated hunter success, hunter satisfaction, and hunt interference between 2007 and 2008 Michigan spring turkey hunting season, summarized by regions.

Region ^a	Hunter success					Hunter satisfaction ^b					Noninterfered hunters ^c				
	2007		2008		Differ- ence (%)	2007		2008		Differ- ence (%)	2007		2008		Differ- ence (%)
	%	95% CL	%	95% CL		%	95% CL	%	95% CL		%	95% CL	%	95% CL	
UP	41	6	39	6	-2	63	6	66	6	4	90	4	96	3	6
NLP	35	2	37	2	3	59	2	60	2	1	88	1	89	1	0
SLP	43	1	47	1	4*	70	1	73	1	3*	87	1	89	1	1
Total	40	1	43	1	3*	66	1	68	1	2*	88	1	89	1	1

^aRegions included the Upper Peninsula (UP), the northern Lower Peninsula north of Management Unit ZZ (NLP), and Management Unit ZZ in the southern Lower Peninsula (SLP).

^bHunters rating their hunting experience as excellent, very good, or good.

^cProportion of hunters that indicated they experienced no or only minor interference from other hunters.

*P<0.005.

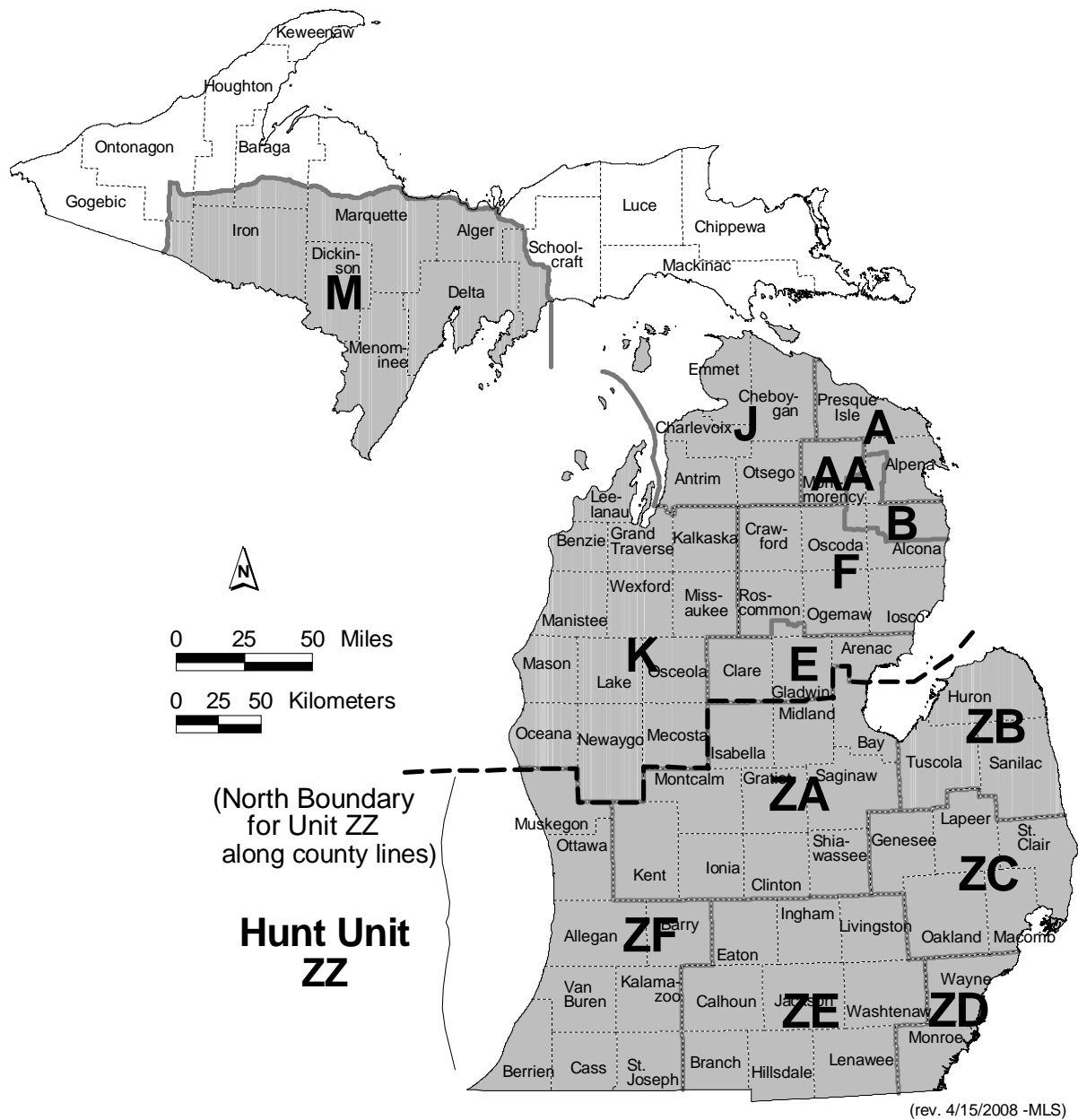


Figure 1. Management units in Michigan open to spring turkey hunting in 2008.

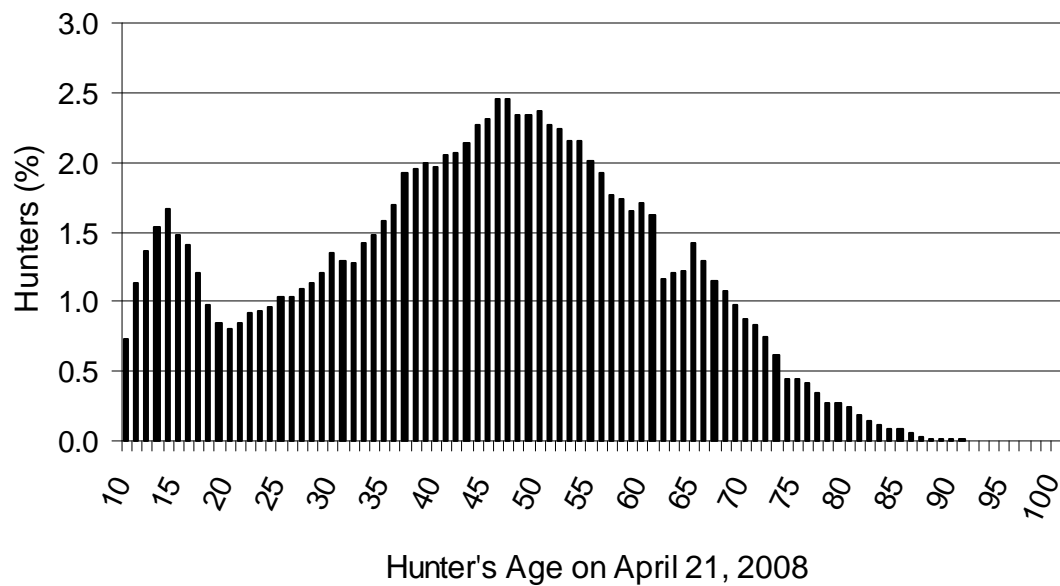


Figure 2. Age of people that purchased a turkey hunting license in Michigan for the 2008 spring hunting season (\bar{x} = 44 years). Licenses were purchased by 118,015 people.

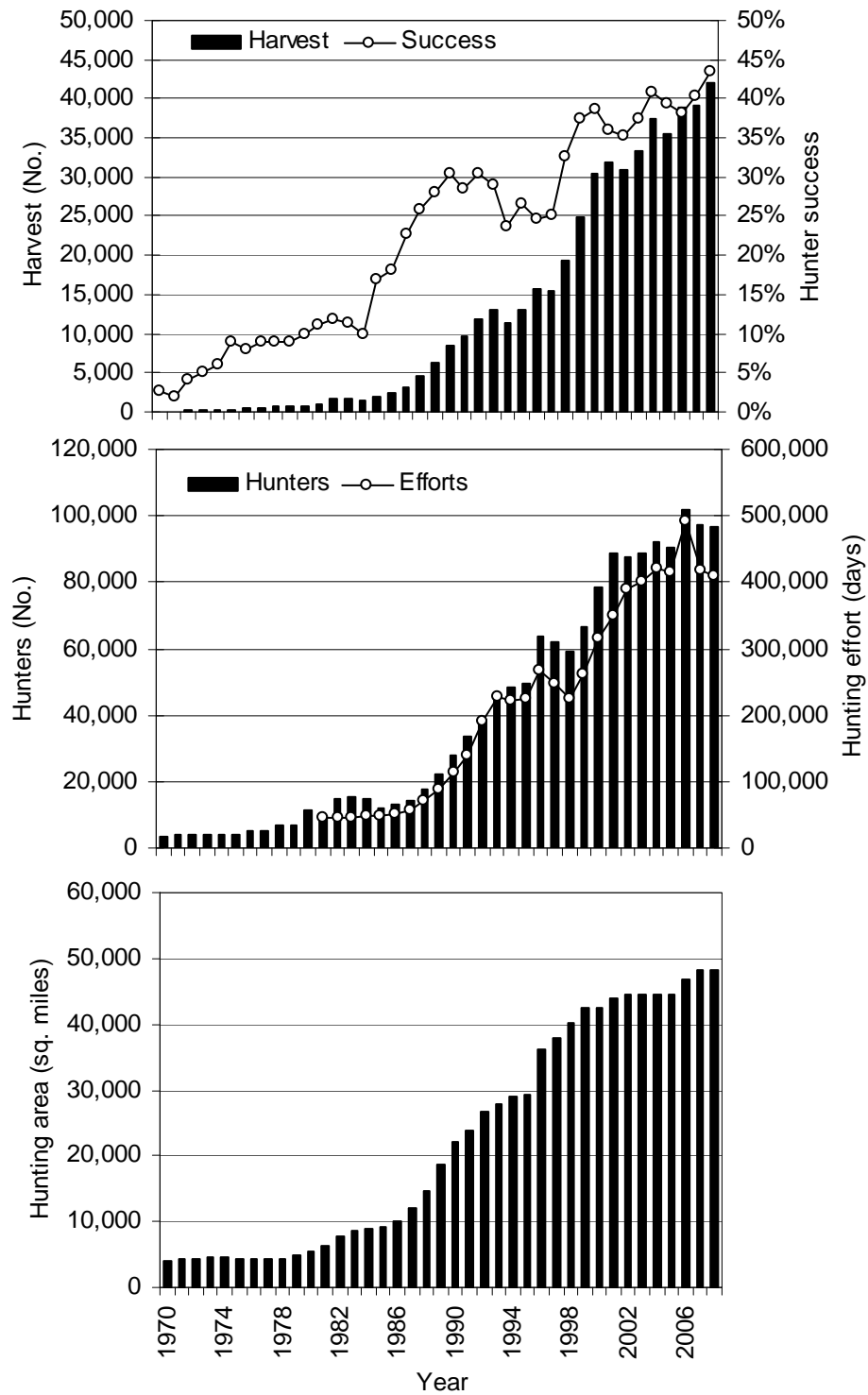


Figure 3. Estimated number of hunters, harvest, hunting efforts, hunter success, and area open to hunting during the Michigan spring turkey hunting season, 1970-2008. Estimates of hunting effort generally were not available before 1981.

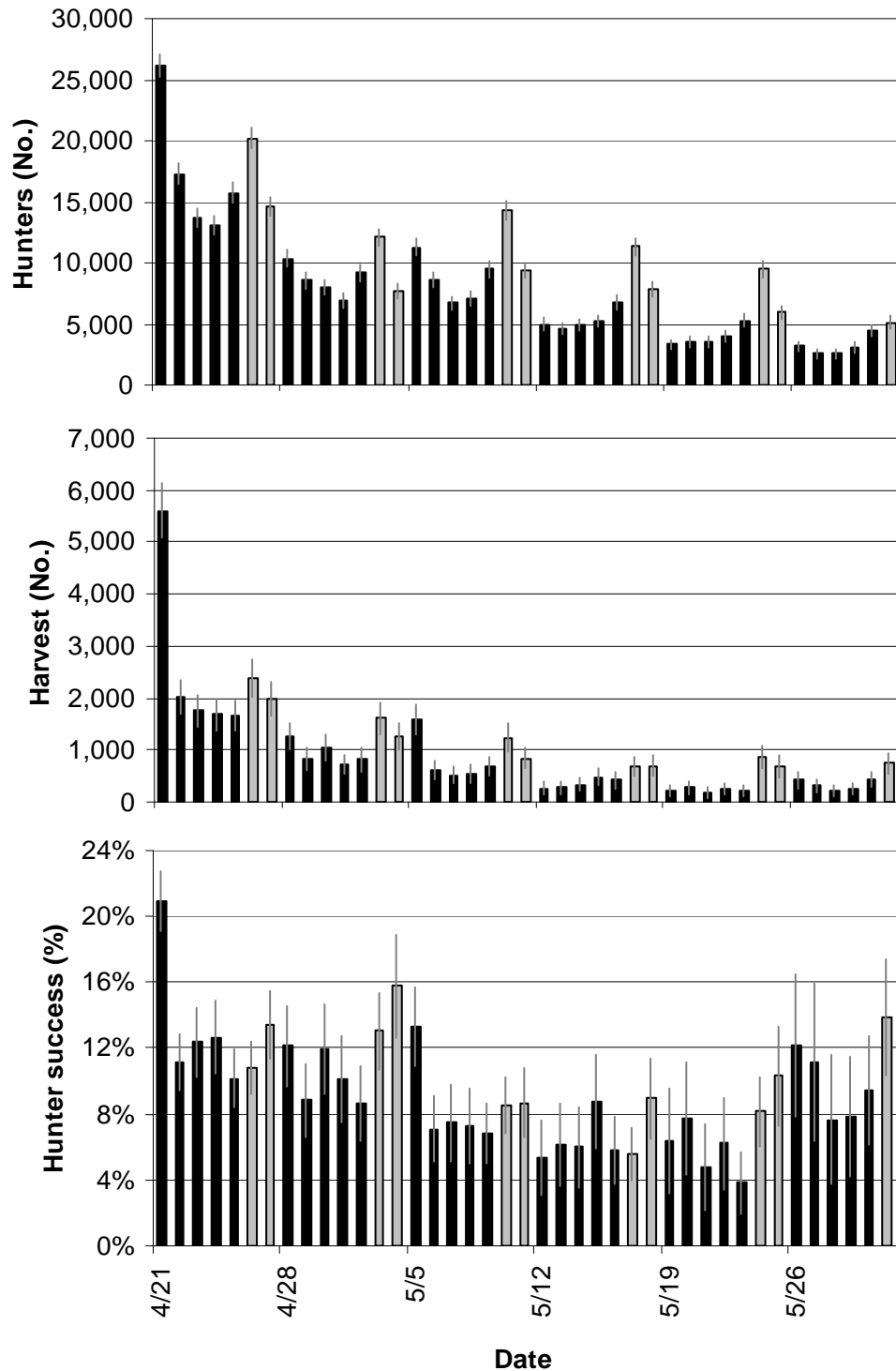


Figure 4. Estimated number of hunters, harvest, and hunter success by date during the 2008 Michigan spring turkey hunting season (includes all hunts). An additional $3,095 \pm 411$ birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

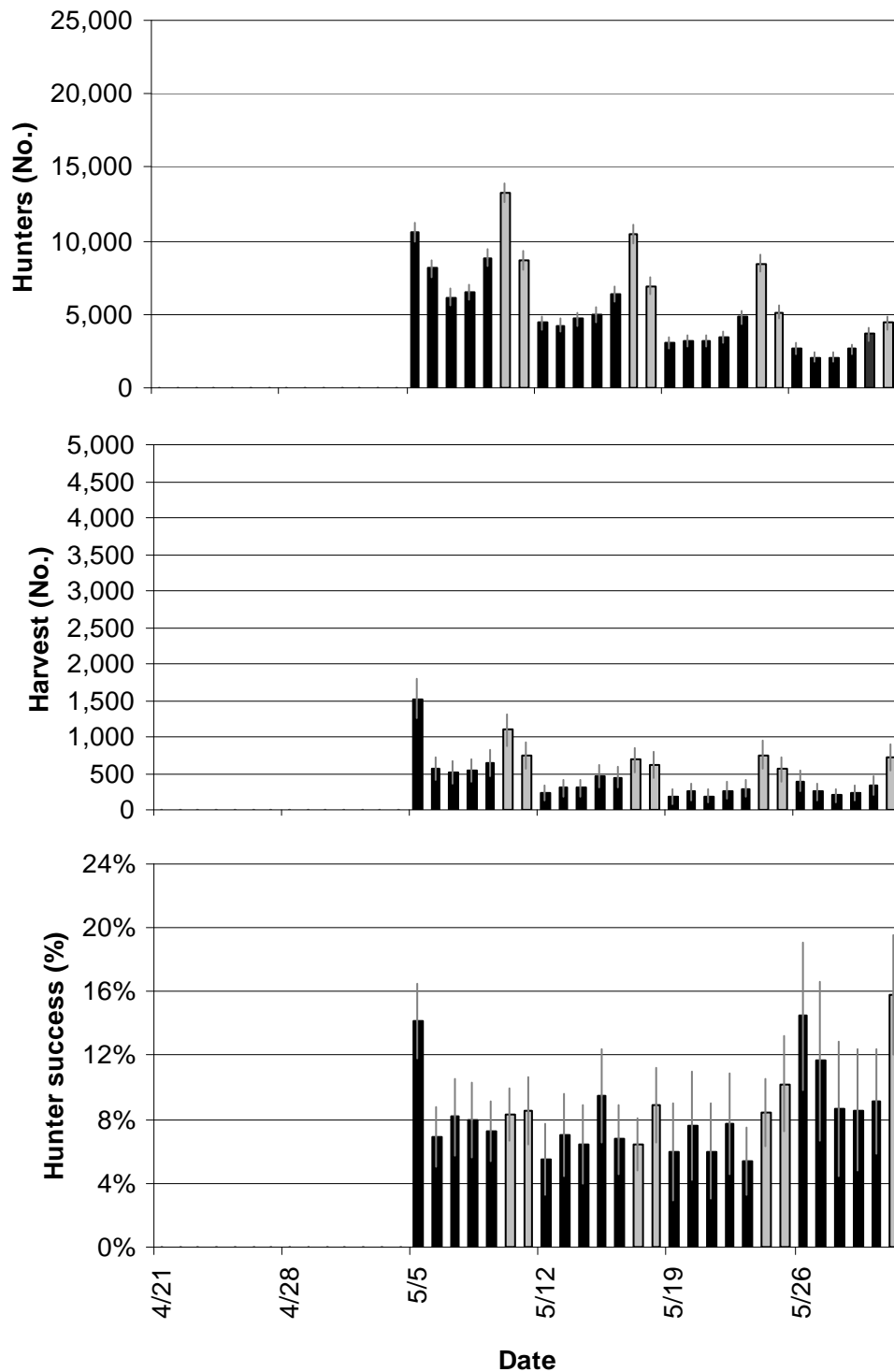


Figure 5. Estimated number of hunters, harvest, and hunter success by date during Hunt 234 of the 2008 Michigan spring turkey hunting season (May 5-31). An additional $1,124 \pm 243$ birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

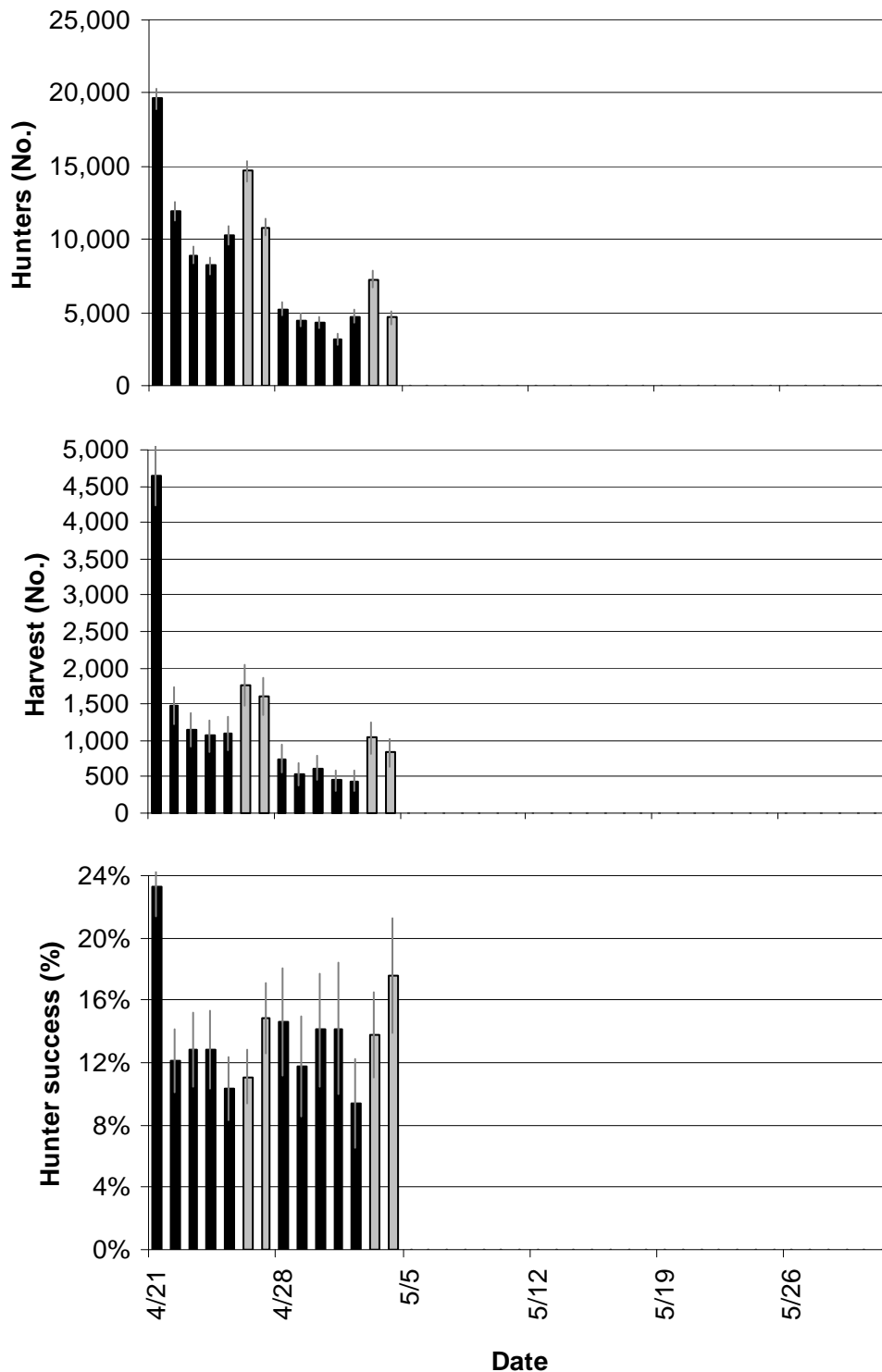


Figure 6. Estimated number of hunters, harvest, and hunter success by date during Hunt 301 of the 2008 Michigan spring turkey hunting season (April 21-May 4). An additional $1,480 \pm 268$ birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

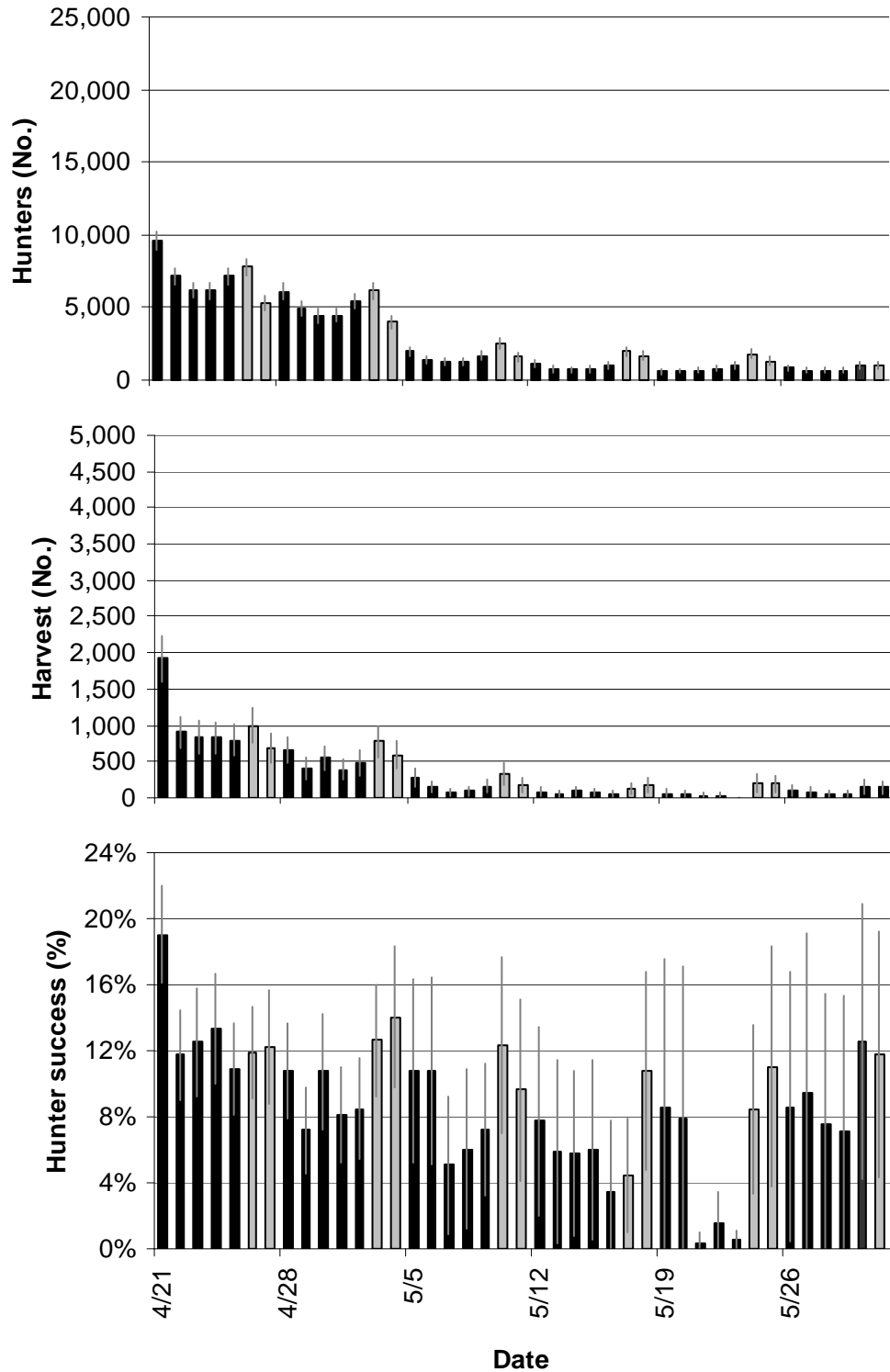


Figure 7. Estimated number of hunters, harvest, and hunter success by date during all hunts except hunts 234 and 301 of the 2008 Michigan spring turkey hunting season. An additional 585 ± 198 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

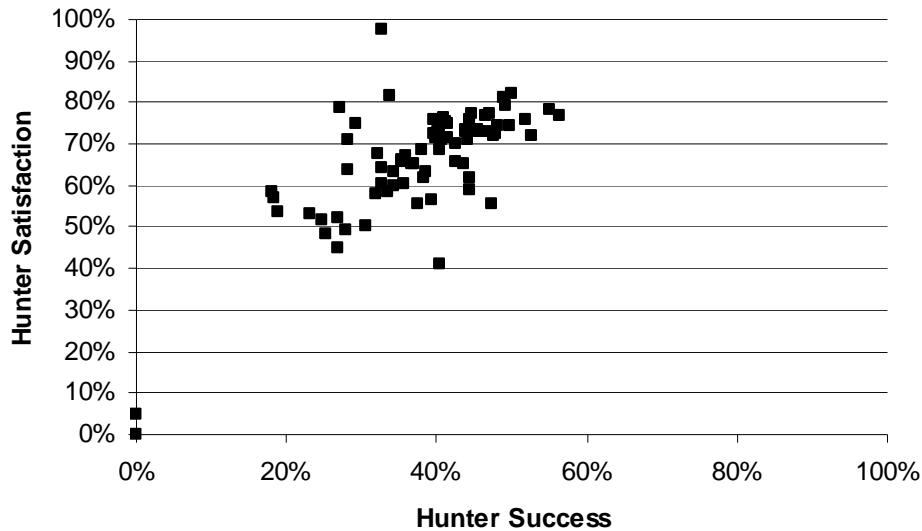


Figure 8. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter success for each of 79 counties in Michigan during the 2008 spring turkey hunting season (included only counties with at least 20 hunters).

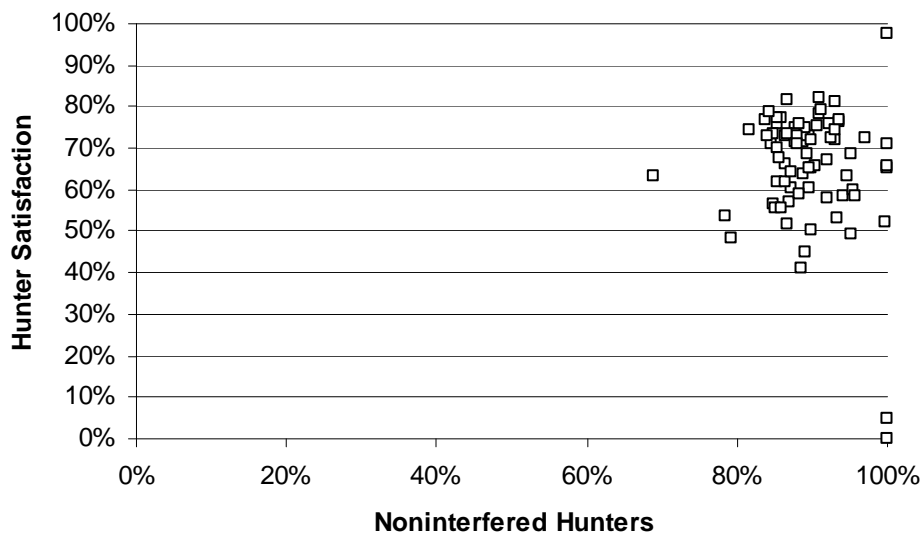


Figure 9. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter interference for each of 79 counties in Michigan during the 2008 spring turkey hunting season (included only counties with at least 20 hunters). Noninterfered hunters were the proportion of hunters that indicated that they experienced no or only minor interference from other hunters.